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ABSTRACT

Numerous theories have attempted to explain possible factors relating to an individual's propensity for engaging or failing to engage in preventative health behaviors. The Health Locus of Control (HLOC) is now considered to be an important variable for understanding an individual's likelihood for following health promoting behaviors. This paper provides a quasi meta-analysis by offering a descriptive and methodological review of HLOC literature from 1976 to 1993. This literature was examined for possible sources of bias. The results of this analysis indicate that HLOC research is primarily conducted in the United States by a fairly even distribution of male and female researchers, who are often members of psychology faculties. Studies are mostly published in psychology journals, with some research appearing in medical journals. These studies have included a wide variety of participants, including hospital patients, employees, school children, and university students. HLOC research is generally of an applied nature, and is most often correlational in design. An analysis of research findings indicates that an Internal HLOC is related to health-promoting behavior, positive health status, health knowledge, information-seeking, and treatment success. Five tables and 13 figures provide statistical summaries. (RJM)

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A Quasi Meta Analysis Of The Health Locus Of Control Construct

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January 30th, 1995

Running Head: HLOC

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Abstract

Health Locus of Control (HLOC) is now considered to be an important variable for understanding an individual's propensity for engaging in health promoting behaviour. As such, its study has important implications for health education and promotion. This quasi meta-analysis provides a descriptive and methodological review of HLOC literature from 1976 to 1993, and examines this literature for possible sources of bias. The results of this analysis indicate that HLOC research is primarily conducted in the United States by a fairly even distribution of male and female researchers, most often from psychology faculties. HLOC research is generally of an applied nature, and is most often correlational in design. An analysis of research findings indicates that an Internal HLOC is related to health-promoting behaviour, positive health status, health knowledge, information-seeking and treatment success. Conclusions and implications are discussed.

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A QUASI META ANALYSIS OF THE HEALTH LOCUS OF CONTROL CONSTRUCT

Introduction

Numerous theories have been formulated in an attempt to explain possible factors relating to an individual's propensity for engaging or failing to engage in preventative health behaviours. Among the many personal determinants of health actions, cognitive structures such as beliefs, expectations, perceptions, values, and attitudes have received the greatest attention (Wallston, 1992). Such cognitions provide individuals with a means of filtering, interpreting, and predicting events (Gochman, 1988). Cognitions regarding control over health are thought to be major determinants of health-related behaviours, and health status (Wallston, 1992; Zindler-Wernet & Weiss, 1987) and much of the research on health beliefs has focused on the concept of Health Locus of Control (HLOC) as predictive of an individual's potential to adopt and pursue healthy behaviours (Kist-Kline & Lipnickey, 1989).

Health Locus of Control is defined by Wallston, Wallston and DeVillis (1978) as consisting of three independent dimensions. The internal dimension is the degree to which one believes her/his health is under self-control. The second dimension, powerful others, is defined as the extent to which one believes that doctors, nurses and other

significant individuals or institutions control one's health. The third dimension, chance, is the extent to which health is believed to be due to luck or fate.

Internal HLOC has been linked to a variety of health behaviours, including information-seeking, adherence to medical advice, weight management, preventative dental care, contraceptive use, and exercise (Strickland, 1978; Wallston & Wallston, 1982; Lau, 1988). It is thought that individuals with an internal orientation are more likely to demonstrate health-promoting behaviours and generally greater adaptive functioning since they feel responsible for the consequences of their behaviour (Gochman, 1988; Kist-Kline & Lipnickey, 1989; Strickland, 1978). As such, the study of HLOC, including its relationships to health-related behaviour and beliefs, its development, and possible methods of modifying it, may be of great importance to the health promotion movement.

The purpose of this quasi meta-analysis is to provide an overview of the HLOC literature and to examine this literature for possible sources of bias. The first section of this paper provides an explanation of the procedure for selecting articles. The second section involves a description of this included literature, and the third section examines methodological issues. The fourth section

summarizes articles that were grouped according to research design and the final section contains the conclusion.

Identification of The Included Literature

Criteria For Article Selection and Sources Consulted

Seven databases were consulted in the initial selection of articles for this quasi meta-analysis: ERIC, Nursing and Allied Health, Sociofile, Sportfile, Psyclit, Medline and DOBIS. The search term "Health Locus of Control" was used for searching these databases for the time period of 1976 until 1994. Although this search yielded a total of approximately 150 articles, many overlaps between Psyclit and ERIC databases were found. There were no overlaps found between the other databases.

Articles were accepted if they dealt specifically with HLOC as opposed to the general "Locus of Control" construct and if they used a measure designed specifically to measure HLOC. In order to ensure a comprehensive and current review of the literature, a manual search was conducted of recent journals that had previously published HLOC research. This search yielded an additional 8 articles, which resulted in a collection of 72 articles. As can be seen in Figure 1, most of the articles included in this analysis were located from Psyclit (41%) and Medline (24%).

Insert Figure 1 About Here

Description of The Included Literature

Year of Publication

Figure 2 is a display of the total number of articles by year of publication, from 1976 to 1993. Researchers have been publishing studies on HLOC every year since 1980. The first health-specific measure of locus of control was published in 1976 by Wallston, Maides, and Wallston. However, researchers continued to utilize Rotter's (1955) Locus of Control survey to measure health-related behaviours throughout the decade. These articles were not included in this quasi meta-analysis.

It is interesting to note that the period from 1989 to 1992 was the most popular period for HLOC research. In fact, 46% of the articles selected were published in this period. This may be indicative of the growth in the field of health psychology over the last decade, and the growing trend towards primary prevention and health promotion. It is difficult to speculate whether the drop in publication in 1993 indicates the beginning of a reversal in this trend, or is merely a temporary lapse due to the high number of articles produced in the previous four years.

Insert Figure 2 About Here

Type of Journal That Article Was Published In

Studies involving the HLOC construct are presented in a wide variety of journals and books. For example, articles for this analysis were found in journals (and books) pertaining to education, sport psychology, psychology, counselling psychology, personality, social psychology, health psychology, developmental psychology, pediatrics, nursing, psychosomatic medicine, psychiatry and medicine. Articles were obtained from 44 different journals, 3 book chapters, and 4 ERIC documents. The Journal of Consulting and Clinical Psychology was the source for 5 articles, which was the highest number of articles obtained from any one journal. See Figure 3 for a presentation of articles by general research field.

Insert Figure 3 About Here

Psychological journals were further broken down according to area, as illustrated in Figure 4. The majority of articles were published in Counselling and Clinical

journals (31%) followed by general psychological journals (26%) and Health Psychology journals (20%). This was somewhat surprising, as it is reasonable to expect that health psychology journals would be the most popular source for HLOC research. A possible explanation may lie in he affiliations of the researchers in this field. Health psychology is a relatively young field, and in may respects it is an outgrowth of the field of clinical psychology. It is possible that many of those working and conducting research within the field are clinical and counselling psychologists who choose to submit their research to applied journals within their own speciality area. Further, 15% of the articles selected dealt solely with instrument development and validation.

Insert Figure 4 About Here

HLOC and Other Areas of Study

Table 1 outlines the various topics studied in relation to, in conjunction with HLOC. Most of the articles (65%) examined HLOC as it relates to psychological factors such as health beliefs and self-esteem and to health-related behaviours such as exercise and compliance with doctor's

advice. HLOC and medical issues (i.e., diabetes, cancer, and cystic fibrosis) comprised the other 35% of the articles.

Insert Table 1 About Here

Country of Research

As can be seen in Figure 5, most of the selected research (83%) conducted on the topic of HLOC has been conducted in the United States. Some (9%) of the research was conducted in Britain, and a smaller portion was conducted in Canada (3%). (The Canadian researchers were from the North Bay Psychiatric Hospital, and from Toronto's Hospital for Sick Children.) One study from Israel and one study from Australia were also included in this analysis. Of the studies conducted in the U.S., the majority were from the Eastern States of Pennsylvania and Tennessee.

Insert Figure 5 About Here

Number of Researchers Involved

As shown in Figure 6, HLOC research is most often conducted by two researchers (38% of the articles included in this review were written by two individuals). Research teams of three and four were the next most common at 19% each, followed by individual research endeavours (15%). Larger teams of five and six researchers were less common. The existence of research teams has implications for investigator bias; perhaps conducting investigations that include more than one researcher may moderate the effects of a researcher's personal bias on the results of a study.

Insert Figure 6 About Here

Author's Title and Position

The professional titles and relative positions (first and second author) of writers in the HLOC field were considered in order to determine the most popular professional group in the area. As illustrated in Figure 7, the bulk of the research was conducted by doctors of philosophy doctors, and very few articles were written by medical doctors. This may be due to a continued focus on diagnosis and remediation by the medical profession, in

contrast to a growing interest in primary prevention by other health professionals. Funding sources may also be an influence on the type of research medical doctors conduct, as there may be a bias toward funding research aimed at discovering cures, as opposed to fostering prevention.

Insert Figure 7 About Here

Author's Gender and Position

Another issue of interest in describing the selected literature was the possibility that gender bias may exist as a result of one gender conducting more studies than the other. As illustrated in Figure 8, a little more than half the studies (56%) had a male first author, 38% of the articles were written by female first authors, and 6% of the articles could not be classified as the authors were identified solely by their last name and an initial. While slightly more males than females were first authors, slightly more females than males were second authors. Considering first and second authors together, a total of 58 females and 67 male researchers conducted the studies in this analysis. Therefore, the possibility of gender bias was most probably precluded.

Insert Figure 8 About Here

Methodological Issues

Sample Description and Data Gathering Locations

An important factor in considering the external validity of a body of research, is possible bias in the selection and inclusion of research participants. Such bias decreases the external validity of the research as generalizability is limited to a select group. Thus, if the bulk of the research in a given area is conducted on a select sample, such as University students, and then used to make generalizations about the Canadian population, these generalizations may not be valid as characteristics common to that group may not be common to the general population.

Such was not the case in this quasi meta-analysis. As can be seen in Figure 9, research participants were selected using a variety of criteria such as students attending universities and schools, people in or visiting hospitals and clinics for treatment, and city residents. The miscellaneous category consisted of employees and members of private business, nurses, and people attending community centres and prenatal class. Therefore, it appears

that the data were not biased due to the type of research participants involved, as they seem to be approximately representative of the North American population.

Insert Figure 9 About Here

Locations for data gathering was also of interest. As illustrated in Figure 10, the use of university facilities (17%) was much less than the use of medical clinics and hospitals (33%). Data were also gathered at schools (25%) and by phoning people in the community (8%). As can be seen in Figure 10, a wide range of people from an equally wide range of settings participated in HLOC research, thereby averting possible bias that may arise from the use of specific locations and samples.

Insert Figure 10 About Here

Sample Sizes Used

Table 2 presents the various sample sizes further categorized by population type. Note that small sample

sizes (1-25) were rarely used in studying the HLOC construct. The most common sample sizes were between 51 and 100 participants. Medium sized research samples, between 151-300 people, were also rather common. Very large samples, including 3975 to 5000 research participants, were also found. The studies that involved large sample sizes (including a study that involved 10,579 participants) were mainly used in validating and factor analyzing HLOC measures.

Research Steps Used

The collection of articles was classified according to Hilgard's (1964) model of research steps. In this model, Steps 1 to 3 are considered basic research and Steps 4 to 6 are considered applied research. More specifically, basic research (Steps 1 to 3), in this analysis, involved generation of a measure of the HLOC construct, and Applied Research (Steps 4 to 6) involved use of this questionnaire to gather information from individuals in various settings.

Studies in this analysis were classified as step one if the authors discussed item generation for HLOC measures and as step two research if they were pilot studies of HLOC measures. Studies that involved testing of a HLOC measure with a research sample were classified as step three.

Articles included in step four research were those that involved collecting data using a HLOC measure to describe a select sample of research participants. For example, a group of University students involved in a research study about the HLOC construct would be included in this category. Step five involved the use of two settings, or the use of several groups in one setting to generate data about HLOC. Step six included research that involved participants from more than one city or state.

As can be seen in Figure 11, steps four and five were the most commonly used research steps in the research of HLOC, followed by step three. Steps one, two, and six were rarely used in the study of HLOC. HLOC is a relatively new construct, thus it was not surprising that a relatively high number of studies were of the instrument validation type (step three). That the majority of studies fall into step four of our model indicates that HLOC is generally studied with an exclusive sample.

Insert Figure 11 About Here

Health Locus of Control Measures Used

A number of instruments have been developed to measure HLOC beliefs. The first health-specific scale was developed by Wallston et al., (1976). This scale, consistent with Rotter's Locus of Control theory, conceptualized HLOC as two dimensional: Internal and External. Early studies utilizing this health-related measure of generalized expectancy found it to be more predictive of health-related behaviours than Rotter's (1955) more generalized scale (Wallston, 1992).

Wallston et al., (1978) later developed a multi dimensional scale which further split the external subscale into two components: chance and powerful others. Chance is the degree to which people believe their health is due to luck or fate, and powerful others refers to the belief that medical professionals (i.e., doctors, and dentists) control their health (Wallston et al., 1978).

Of interest to the current analysis was the frequency with which the various HLOC measures were used in the selected research. As can be seen in Figure 12, Wallston et al.'s 1978 Multidimensional Health Locus of Control scale (MHLOC) was the most popular instrument for examining adults' HLOC, followed by Parcel and Meyer's (1978) HLOC scale for children (CHLOC). The popularity of the MHLOC may in part be a result of the available empirical support, as

numerous studies have been conducted to validate and factor analyze this measure (28% of the articles in this analysis addressed testing and norming of the Walston scale). The popularity has not waned despite the fact that Thompson et al. (1987) provided a revised version of the MHLOC scale. This may in part be due to the availability of norms supplied for the older scale, which are not available for Thompson's revised form.

As can be seen in Figure 12, 43% of the studies employed Wallston et al.'s (1978) MHLOC scale. Only 8% employed the revised form, although the studies were conducted much later than the publication of the revised scale. Wallston et al.'s 1976 and 1978 scales were employed in 62% of the HLOC research. In fact only 12% of research involving adults did NOT use one of the Wallston's scale.

Insert Figure 12 About Here

Type of Statistics Used

The type of statistic used to analyze data generated by HLOC Scales, in conjunction with other measures, is presented in Figure 13. Use of descriptive statistics such

as means and standard deviations were not included in this analysis because they were used by most of the researchers and did not seem to add any important information to this aspect of the analysis. Note that most researchers employed several types of statistics, as was expected, and therefore each study could have made more than one contribution to this figure.

Insert Figure 13 About Here

The most common type of statistic used to analyze data was a measure of association, such as correlation coefficients and chi squares. Analyses of variances, such as ANOVAs, ANCOVAs, and MANOVAs, were also very common. The number of Factor Analyses is quite high because of the many studies that included an examination of Wallston et al.'s Multidimensional HLOC scale.

Methodological Classification

Articles were classified according to Leddy's (1989) summary of experimental methodology. The articles selected for this quasi meta-analysis fit into six categories which were pre-experimental, quasi-experimental, correlational,

theoretical, and reviews of the literature. Table 3 presents the frequency of articles per category. As can be expected from studies pertaining to HLOC, the most frequently employed research design was the correlational design.

Insert Table 3 About Here

Pre-Experimental Designs

One Shot Case Study. An article was classified as a one shot case study, in this analysis, if research participants were administered a questionnaire about HLOC and the data were used to calculate psychometric properties of the questionnaire, and/or was used to describe the research sample. Eleven of the studies in this analysis were placed in this classification. Examples of studies included in this category are a study describing HLOC of health professionals (Eachus, 1990), and two studies examining the psychometric properties of Wallston et al.'s (1978) scale first with participation from an alcoholic population (Russell & Ludenia, 1983) and the second study was conducted in a psychiatric setting (Wall, Hinrichsen, & Pollack, 1989).

With the exception of Lau and Ware's (1981) study validating their own multidimensional HLOC Scale, and Wallston et al.'s (1976) initial scale development study, researchers employed Wallston et al.'s (1976) MHLOC scale. These studies concluded that HLOC is a multi-dimensional construct, and supported a three factor solution which confirmed the independence of Internal, Chance, and Powerful Others subscales. They also concluded that Wallston et al.'s (1978) scale was suitable for the specific population the researchers assessed (eg. alcoholics, psychiatric patients, university students etc.), and that alpha reliabilities for the individual scales ranged from .57 to .85 (using special populations and university students).

Static Group Comparison. Articles within this category utilized comparative statistics (including t-tests, ANOVAs, and MANOVAs) to investigate within and between group differences. However, they did not meet the criteria for true experimental designs as none employed random assignment or Control. According to Jaeger's (1988) definition, a study is comparative if at least two different conditions are represented by the independent variable. Ten articles in this analysis were placed in this category. HLOC was employed both as a dependent measure and as an independent variable. Kellerman's (1980) comparison of ill and healthy adolescents on measures of anxiety, self-esteem,

and HLOC is a good example of the use of HLOC as a dependent variable. Wallston et al., (1976) used HLOC and health value as independent variables, with information-seeking as their dependent measure.

HLOC was primarily used as an independent variable. These studies found significant differences between people with differing HLOCs (Internal and External; Chance and Powerful Others) on measures of depression (Frank & Elliot, 1989), health behaviour (Cohen, 1990), information-seeking (Wallston & Wallston, 1976), dependence upon physicians and coping with diabetes (Petty, Sensky, & Mahler, 1991), health status (Parcel, Nader, & Rogers, 1980) and alcoholism (Dean & Edward, 1990). It was also shown that smokers, compared to non-smokers tended to be externally oriented (Eiser, Eiser, Gammage, & Morgan, 1989); ill adolescents tended to hold external beliefs while healthy adolescents tended to be internal (Kellerman, 1980); alcoholics with a family history of alcoholism had significantly higher External (Chance) scores than non-alcoholics with similar backgrounds (Fleming, 1991) and that seat-belt users did not differ from non-users (Fleming, 1991).

Quasi-Experimental Designs

Nineteen per cent of the articles were classified as quasi-experimental in design. These articles were further divided into Pretest - Post Test, and Time Series designs.

Pretest - Post Test Design. In order for a study to be classified as a quasi-experimental, pretest - post test design, research participants were not randomly selected or randomly assigned to either a control or treatment group (Leddy, 1989). A study was also included in this category if a control group was not included. The absence of a control group was common for studies in HLOC, perhaps due to the ethical question of treating one group of participants and not another. Ten studies were classified in this way.

An example of a study placed in this category is one involving 16 adolescents with Phenylketonuria (PKU). Participants were involved in a treatment program in which they were taught about their illness, employed goal-setting and self-monitoring, and made contracts and received rewards for engaging in health-promoting behaviour. Post-test measures were used to determine whether the treatment affected HLOC, knowledge about PKU, and health-related behaviour. Results indicated that HLOC was not influenced, although knowledge levels increased and health-related behaviour improved (Gleason, Michals, Matalon, Langenberg, & Kamuth, 1991).

Table 4 presents a summary of the pretest - post test quasi experimental research. Results indicate that while HLOC is not easily changed, individuals with an internal HLOC tend to benefit more form treatment programs aimed at altering or promoting health-related behaviours than those with an external HLOC (Chance or Powerful Others). One interesting area for future research is that of treatment matching, or designing behavioral change programs that are congruent with the participants' particular HLOC orientation.

Insert Table 4 About Here

Time Series Designs. Leddy (1989) defines time series design as those involving several observations or measurement times, both prior to and after the instruction or treatment. Four time series studies were included in this analysis. Two studies were conducted over a 12 month period, one over a 20 month period, and one over a 36 month period. Results indicated that individuals with an internal HLOC engaged in a greater number of preventative health behaviours and sought more health-related information (Quadrel & Lau, 1989); individuals with an external HLOC

were more likely to experience physical complaints (Moffett, Hughes, & Griffiths, 1993); less likely to engage in preventative self-care, had poorer self-rated health status, and were less optimistic concerning the efficacy of treatment (Seeman & Seeman, 1983). Contrary to previous findings, Farid, Johnson, Lucas, and Willimas (1988) found that alcoholic liver disease patients were more internally oriented than those with nonalcoholic liver disease.

Correlational Studies

The correlational design was the most popular type employed in the study of HLOC. Forty-two per cent of the articles in this analysis utilized this design, either in a causal-comparative, ex post facto, or regression analysis.

Causal-comparative. Causal-comparative studies are defined by Leddy (1989) as those that attempt to determine cause and effect relationships between two sets of data. Twenty-five articles were placed in this category. Constructs found to be significantly related to HLOC, along with the direction of the relationship are presented in Table 5. The majority of relationships were found between Internal HLOC and the various constructs. This may imply that the Internal dimension of HLOC is the more critical discriminator of health protective behaviours. Further

study in which discriminant analyses are employed may explain this phenomenon.

The most common relationship was that between Internal HLOC and measures of health behaviour, both preventative and detrimental (40% of the articles with a correlational design reported this relationship). Associations between illness behaviours and attitudes (such as coping, and emotional adjustment) and Internal HLOC were also common (28%), as were those with high health value (12%) and positive health status (12%).

Insert Table 5 About Here

Ex Post Facto Designs. Ex post facto designs are a further subdivision of the correlational design. Leddy (1989) defines this design as a "...search backward from consequent data for antecedent causes" (p. 221). Of the selected research for this analysis, 7% were ex post facto in design. The combined findings of these studies suggest that the following are common origins of internal HLOC:

a) history of preventative health behaviour,

b) high self-esteem,

c) low susceptibility to peer pressure,

d) lower number of childhood illnesses (than externals) and,

e) self-care efficacy

f) positive adjustment

(Dielman, Shope, & Butchart, 1990; Lau, 1982; Lau, Hartman, & Ware, 1986, Tolor, 1978; Zindler-Wernet & Weiss, 1987).

True Experimental Designs

Pretest - post test control group design. Leddy (1989) explains that the aim of this design is "To study the effect of an influence on a carefully controlled sample" (p.220). Jaeger (1988) defines a true experiment as a comparative study in which the independent variable is under the direct control of the researcher, and which utilizes random assignment of subjects. Of the articles included in this analysis, only one met the criteria for this type of design. Results of this study indicated that internal HLOC scores improved significantly more for children receiving standard biofeedback training than those in novel and control condition (Labbe, Delaney, Olsen, & Hickman, 1993).

Theoretical Articles

Only 2 of the 72 articles included in this quasi meta-analysis were of a theoretical nature. The articles offer a modification of social learning theory in which internal HLOC beliefs "moderate but do not mediate health-promoting

behaviour" and discuss the development and utility of "global indicators of perceived control over health in preference to a strict focus on the locus of control " (Wallston, 1992). Wallston argues that HLOC is a necessary, but not sufficient condition for engaging in health promoting behaviour. He distinguishes the sense of responsibility for one's health from a person's feeling of being capable to take the right steps to improve and control health, and concludes that "People must value health as an outcome, believe that their health actions influence health status, and concurrently believe that they are capable of carrying out the necessary behaviours in order to have a high likelihood of engaging in a health-directed action..." (p.195).

However, only 6%, or 4 out of 72 articles, included in this quasi meta-analysis found Health Value to be related to or interacting with internal HLOC and other health related issues such as preventative behaviours (Kist-Kline & Lipnickey, 1989; Quadrel and Lau, 1989), less susceptibility to illness (Parcel, Nader, and Rogers, 1980) and information seeking (Maides & Wallston, 1976).

Four per cent of the articles did not find any relationship between Health Value and HLOC. For example, 2 of the articles did not find Health Value to covary or relate to internal HLOC and preventative behaviours

(Wurtele, Britcher & Saslawsky, 1985; Zindler-Wernet & Weiss, 1987). Shlenk and Hart (1984) did not find a relationship between compliance to diabetes treatment recommendations, internal HLOC and Health Value. Therefore, results are equivocal as to whether Health Value is an important theoretical consideration in the study of HLOC and health related issues.

Review Articles

The final category of methodological classification examined in this quasi meta-analysis is the literature review. Approximately 6% of the articles included in this analysis were literature reviews. Very generally, these reviews found that internal HLOC is linked to the performance of a variety of preventative health behaviours including seat belt use, exercise, inoculation, contraceptive use, preventative dental care, to the ability to lose weight and quit smoking. Internal HLOC was also linked to the tendency to gain more information about disease and to have generally higher levels of health knowledge and health status (Strickland, 1978; Lau, 1988; Wallston et al., 1991). Although many of these findings have been difficult to replicate, and contradictory results have been found, Strickland (1978) concludes that internally oriented individuals have a greater tendency to engage in

health protective practices than externals do. However, Wallston and Wallston (1982) assert that health protective behaviours are determined by many factors, and that HLOC predicts only some of the variance.

Conclusions

The trend toward health promotion and primary prevention requires a broad conceptualization of the many factors influencing health. This entails consideration of the psychological and cognitive determinants of health status and health behaviour. Among the many personal determinants of health, HLOC is now recognized as an important variable for understanding an individual's propensity for engaging in health promoting behaviour. As such, its study has important implications for health education and promotion efforts.

In examining many aspects of the selected literature on the construct of Health Locus of Control, the following broad conclusions can be made:

(a) HLOC research is primarily conducted in the United States, by researchers in psychology faculties. These studies were conducted by a fairly even distribution of female and male researchers. Studies are mostly published in psychology journals, with some appearing in medical journals.

(b) HLOC research has been conducted with a wide variety of participants from a wide range of ages, including hospital patients, employees, people from the community, school children, and university students.

(c) Most of the studies on HLOC are applied research.

(d) Most researchers studying adult's HLOC use Wallston et al.'s 1978 Multidimensional Health Locus of Control Scale which consists of three independent subscales, despite later revisions and the availability of other measures.

(e) Much of the HLOC research is correlational and quasi-experimental in design.

(f) An internal HLOC is usually found to be related to health-promoting behaviour, positive health status, treatment compliance/ adherence and success, health-related knowledge, and information-seeking.

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TABLES AND FIGURES

Table 1

Health Locus of Control and Other Areas of Study

ONLY HLOC	Total 7	
MEDICAL ISSUES	Total 28	
Abnormal Pap Smears		1
Asthma		1
Back Injury		2
Cystic Fibrosis		2
Cancer		2
Common Illnesses		2
Diabetes		3
Early Sickness Experience		2
Health Status		9
Herpes Recurrences		1
Hypertension		1
Liver Disease		1
PKU		1
PSYCHOLOGICAL FACTORS	Total 25	
Concern With Appearance		1
Coping & Adjustment		5
Health Beliefs		2
Health Value		7
Personality Correlates		3
Self-esteem		1
Self-Efficacy		2
Social Support		4
HEALTH-RELATED BEHAVIOUR	Total 39	
Combination of Behaviours		9
Compliance / Adherence to Medical Advice		2
Exercise		2
Information-Seeking		5
Nutrition		3
Risk-Taking		3
Substance Use or Abuse		15
Total		99

Table 2

Sample Size by Population

Sample Size	Adult College	Adult Patient	Adult Other	Child Student	Child Patient	Child & Adult	Total
1-25	0	0	0	0	1	0	1
26-50	1	4	2	1	1	0	9
51-100	2	5	2	2	3	1	15
101-150	0	0	3	4	1	1	9
151-200	1	0	3	3	0	0	7
201-250	1	1	0	0	0	0	2
251-300	1	2	0	0	0	0	3
301-350	3	0	0	0	0	0	3
351-400	0	0	2	0	0	0	2
401-500	0	0	0	0	0	0	0
501-600	1	0	1	2	0	0	4
601-700	0	0	1	0	0	0	1
701-800	0	0	0	0	0	0	0
801-900	1	0	0	0	0	0	1
901-1000	0	0	1	0	0	0	1
1000+	0	0	3	6	0	0	9
Total	11	12	18	18	6	2	66

Table 3

Summary of Research Designs

PRE-EXPERIMENTAL	
One Shot Case Study	11
Static Group Comparison	10
QUASI-EXPERIMENTAL	
Pre Test - Post Test	10
Time Series	4
CORRELATIONAL DESIGNS	
Causal-Comparative	38
Ex Post Facto	3
THEORETICAL	2
REVIEW	4
Total	**72**

Table 4

Results of Pretest-Post Test Quasi Experimental Designs

Treatment Did Not Influence HLOC
PKU Treatment (Gleason et al., 1992)
Problem-Solving Instruction (Heerman & Wills, 1992)
Assertiveness Training and Smoking Prevention (Del Greco et al., 1986)
Treatment Influenced HLOC
Student-Centred Health Education (Arborelius & Bremberg, 1988)
Internals More Successful
Internals (with high health value) Sought More Health Information (Wallston & Wallston, 1976)
Internals Achieved Higher Knowledge Scores (Riggs & Noland, 1984)
Internals More Likely To Abstain From Smoking After Treatment (Horwitz et al., 1985)
Patient Success And Satisfaction
Patients in programs consistent with their HLOC beliefs were more satisfied and experienced more success than those in programs not congruent with HLOC beliefs (Wallston & Wallston, 1976; Riggs & Noland, 1984)

Table 5

Constructs Related to HLOC

Construct	Type of HLOC			
	Internal	External	External: Chance	External: Powerful Others
Age	+			
Alcohol Use & Abuse	+/-			
Compliance to Dr.	+			+
Concern With Health	+			
Coping With Illness	+			
Early Health Habits	+			
Education Level	+			
Health Knowledge	+			
Health Status	+			
Health Value	+			
Information Seeking	+			
Preventative Health Behaviour	+		-	
Prior Sicknesses			+	-
Risk-Taking	-	+	+	
Self-Concept	+			
Self-Efficacy	+			
Self-Esteem	+			
Severity of Illness	-	+		
Smoking	-	+	+	
Smoking Abstinence	+		-	
Social Network	+			
Susceptibility to Peer Pressure	-	+		

Figure 1

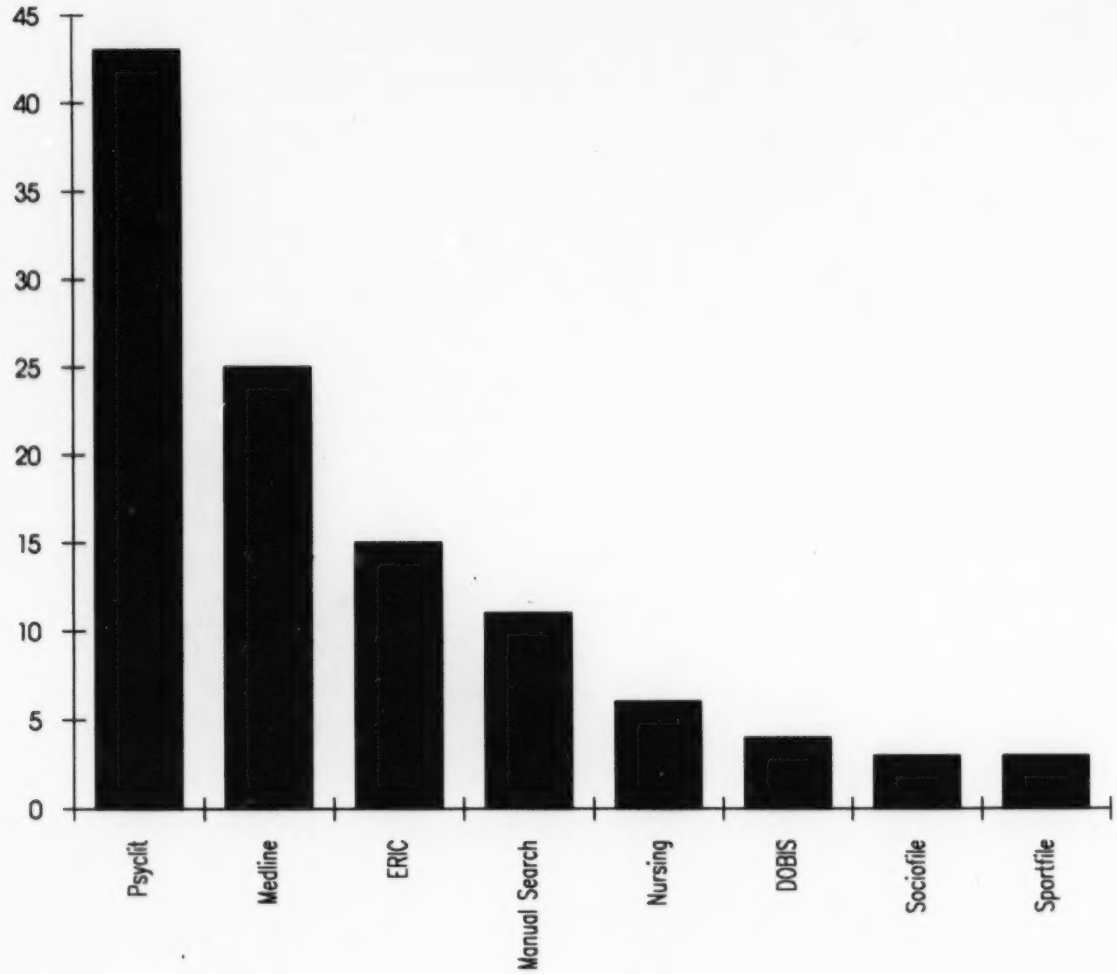

Figure 1 Per Cent of Articles From Various Data Bases

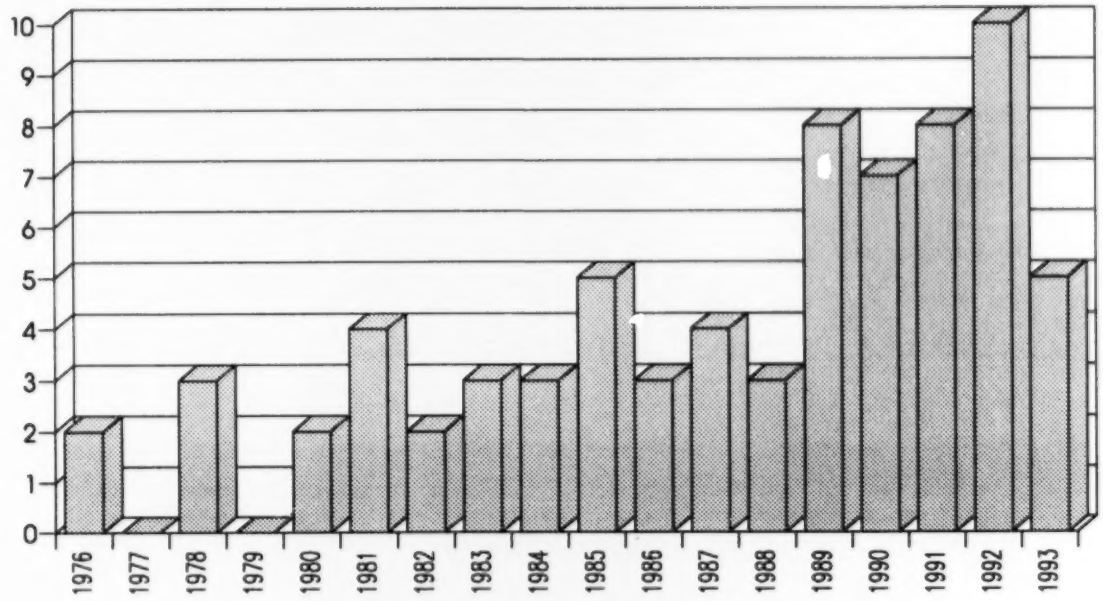

Figure 2 Number of Articles by Year of Publication

Figure 3

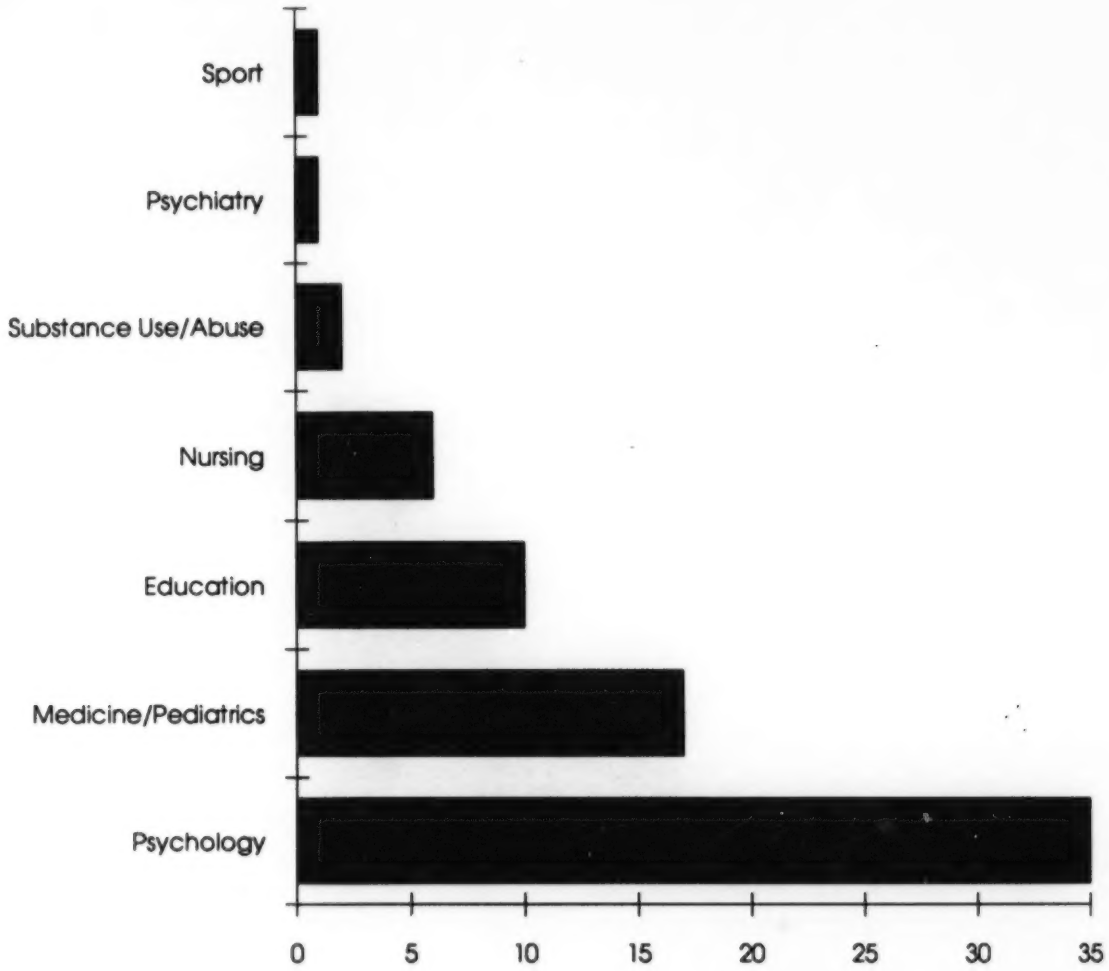

Figure 3 Number of Articles by Types of Publication

Figure 4

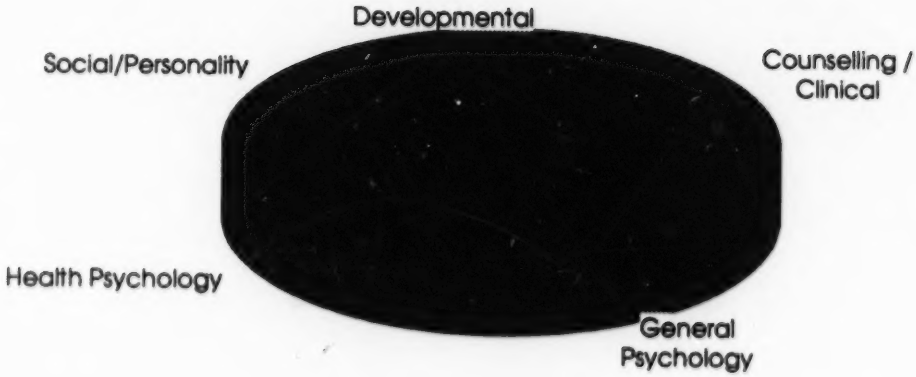

Figure 4 Psychology Journals By Type

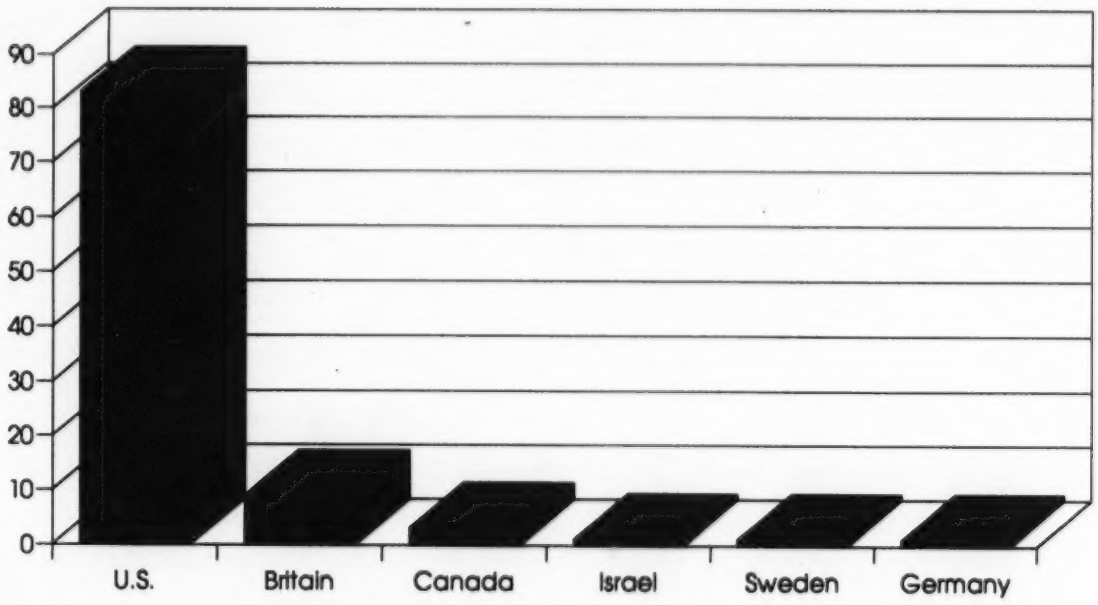

Figure 5 Country of Research

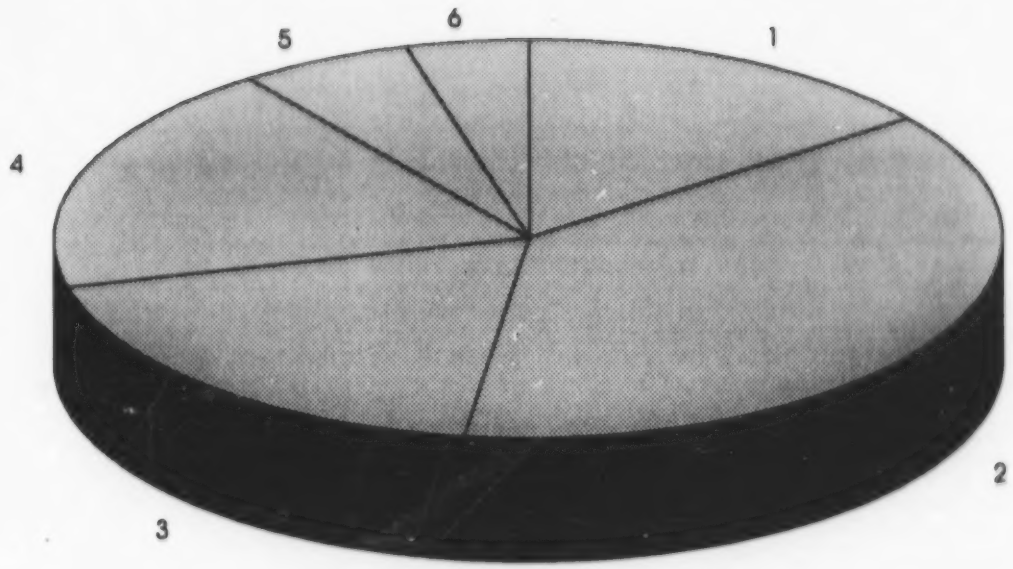

Figure 6 Number of Researchers Involved

Figure 7

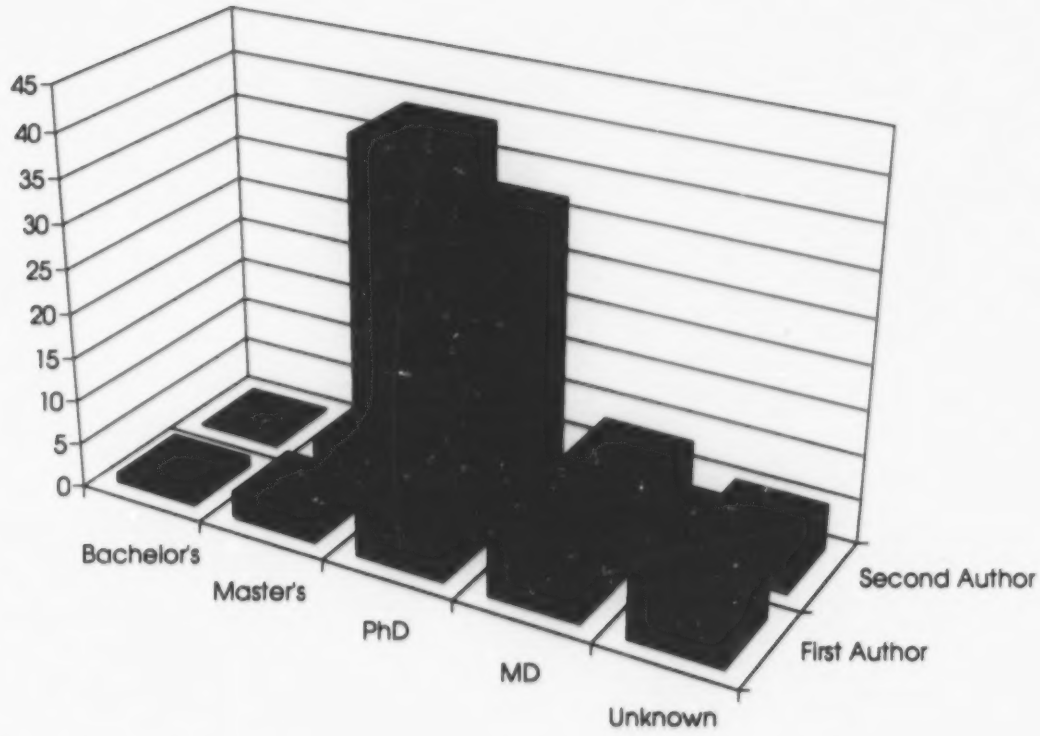

Figure 7 Author by Title And Position

Figure 8

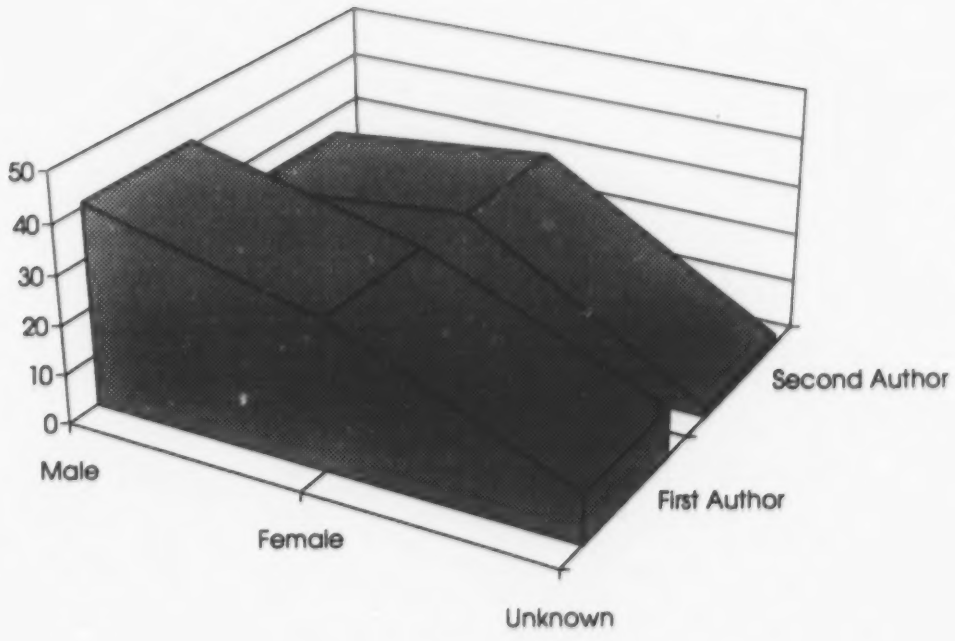

Figure 8 Author's Gender and Position

Figure 9

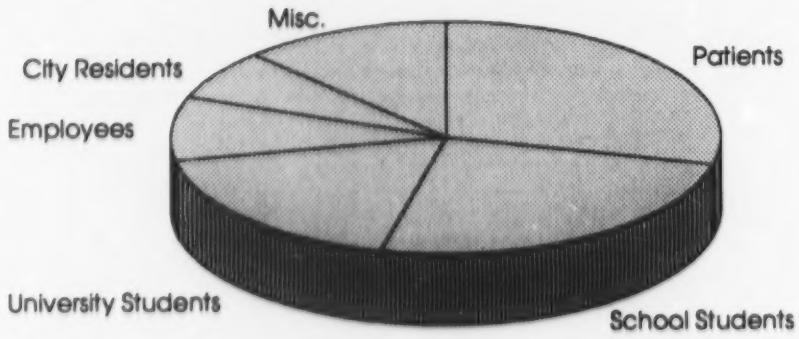

Figure 9 Sample Description

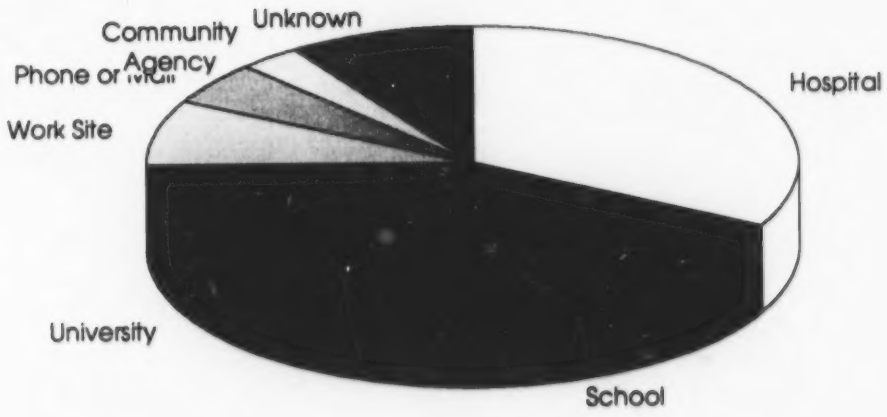

Figure 10 Data Gathering Location

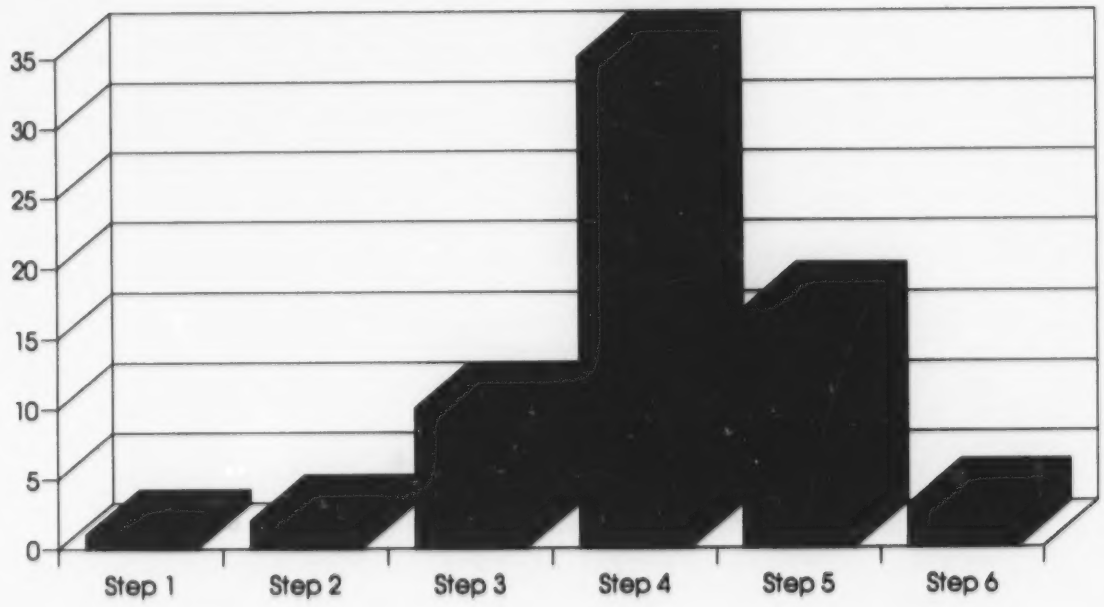

Figure 11 Research Steps Used

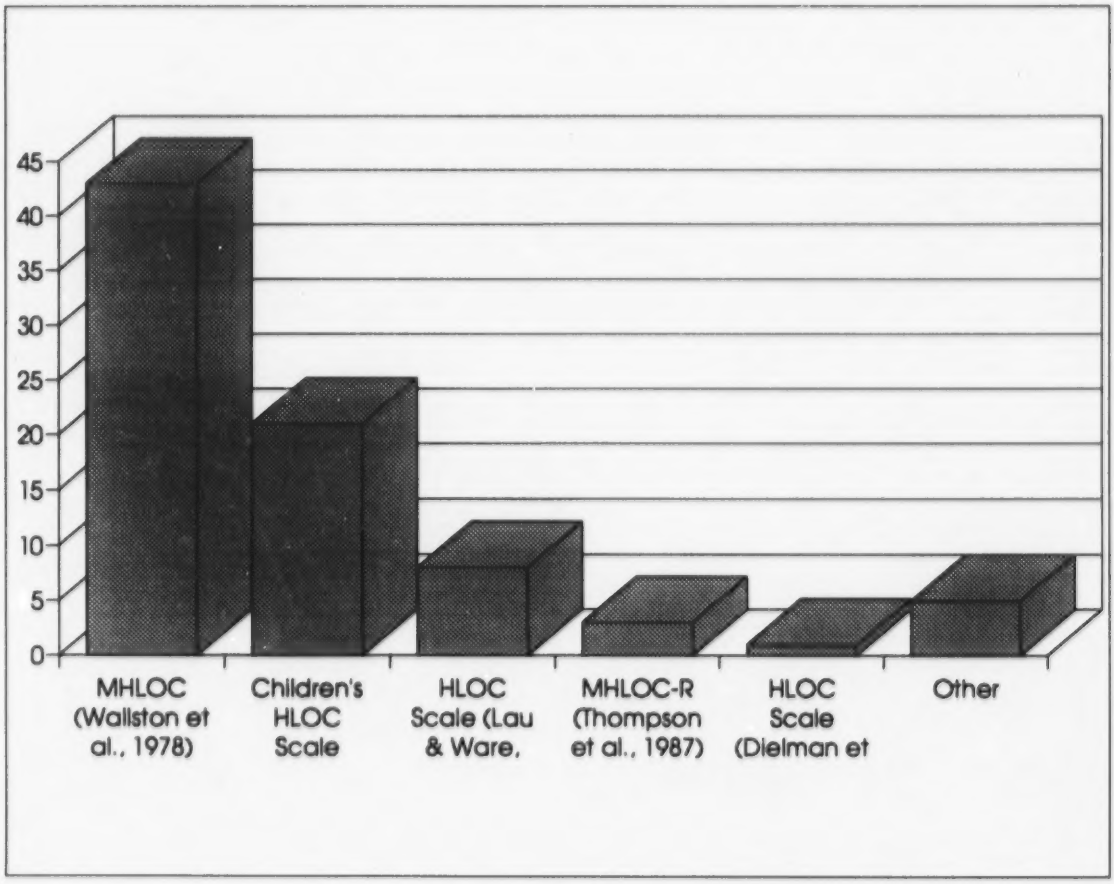

Figure 12 Per Cent of Studies Using Various Measures of HLOC

Figure 13

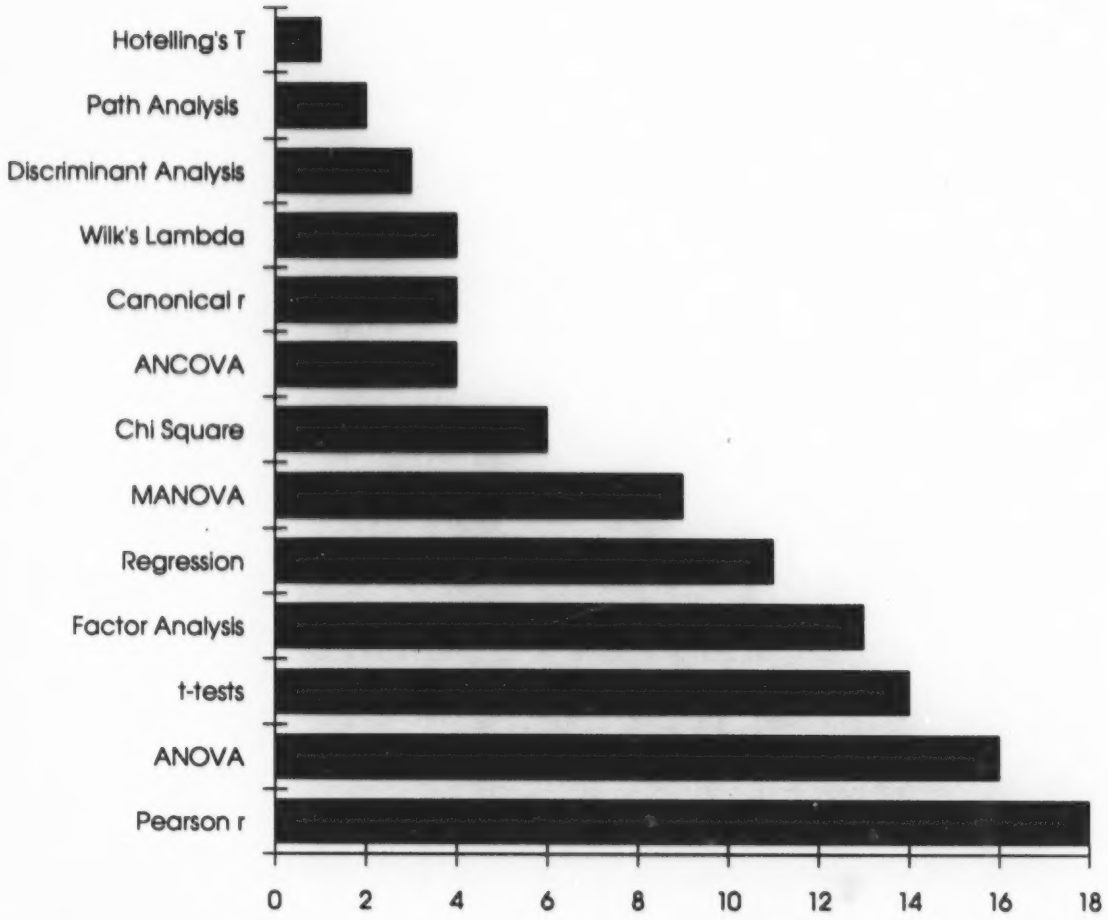

Figure 13 Type of Statistics Used